SPECTROSCOPIA MOLECULAR

UN PERIODICO MENSUAL DE NOVAS E INFORMATIONES DE INTERESSE E VALOR

AL SPECTROSCOPISTAS MOLECULAR

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SPECTROSCOPIA MOLECULAR ha essite redigite e publicate mensualmente depost Maio 1952 per Prof. Forrest F. Cleveland del Departimento de Physica del Instituto Technologic de Illinois in Chicago. Pro assecurar un plus facile lectura per le plus grande numero del spectroscopistas, le periodico es scribite in le lingua international, Interlingua. Manuscriptos e novas e informationes, tanto como abonamentos e ordines pro monographias, debe esser inviate a

Spectroscopia Molecular
Departimento de Physica
Instituto Technologic de Illinois
Chicago 16, Illinois, S. U. A.

Le texto original es legite per Dr. Alexander Gode, Chef del Division de Interlingua de Science Service (80 East 11th St., New York 3, N. Y., S.U.A.). Libros super Interlingua, disponibile ab ille adresse, es Interlingua-English Dictionary, Interlingua Grammar, Interlingua A Prime Vista, Interlingua in 20 Lektionen, Interlingua en 20 Leçons, Interlingua in 20 Lezioni, e Homo Sonetticus Moorensis (un bellemente imprimite parve libro de poemas con illustrationes).

Labor editorial es gratis. Le costo de preparation e distribution es recipite ab spectroscopistas, bibliothecas, e companias que beneficia del existentia de Spectroscopia Molecular. Il ha nulle altere medios de supporto. Omne le receptas es usate pro le mantenimento e melioration del periodico.

Assistentes de publication es Srta. Coleen Byrne e Srs. Jerome M. Dowling e Edward A. Piotrowski. Le imprimer es facite per Bernice, Jean, Lilly, Chicki, e Alice del Servicios de Bureau al Instituto Technologic de Illinois sub le direction de Srta. Virginia Brown.

Il ha 12 numeros per anno e le precio de abonamento es $2.25 nette ($2.00 si pagamento accompania le ordine). Volumines passate del annos 1952, 1953, etc. es $3.00 nette per volumine. Numeros individual es $0.25 per cata un. Le periodico pote esser inviate per posta aeree si le subscriptor provide le costo de postar additional. (Face cheques pagabile a "Spectroscopia Molecular".)

Companias pote attachar un pagina de informationes in re lor productos, si illos es de interesse a spectroscopistas molecular.

MONOGRAPHIAS. Duo monographias es disponibile. Illos es:

Spectros Molecular. I. Regulas de Selection pro Spectros Vibrational de Moleculas Polyatomic, per Forrest F. Cleveland, 1953, 25 paginas, $0.75 nette.

Spectros Molecular. II. Tractamentos del Coordinatas Normal de Moleculas Polyatomic, per Salvador M. Ferigle e Alfons Weber, 1955, 30 paginas, $1.00 nette.

SPECTROSCOPIA MOLECULAR

Volumine 6 Maio 1957 Numero 61

MULTE DISCURSOS SPECTROSCOPIC ESSEVA PRESENTATE IN CALCUTTA

S. C. Sirkar

Departimento de Optica
Association Indian pro le Cultivation de Scientia
Jadavpur, Calcutta 32, India

(Recipite le 6 de martio 1957)

LE CONGRESSO INDIAN DE SCIENTIA conveniva in Calcutta in januario. Del discursos presentate, 16 es de interesse spectroscopic. Breve summarios de istos es date infra:

1) P. V. Chandratreya e N. R. Tawde ha obtenite precise datos theoric e experimental in re le probabilitates de transition in le systema $A \rightarrow X$ del molecula VO per uso del tractamento de Hutchissen. Nulle concordantia es observate inter le 2 gruppos de datos.

2) M. R. Katti e N. R. Tawde ha probate le expression modificate pro le energia potential, proponite per Hulbert e Hirschfelder, per uso de constantes plus precise pro H_2 e su isotopos. Nulle melioration es trovate.

3) V. M. Korwar e N. R. Tawde ha extendite le studio theoric del probabilitates de transition in le systema $A^2\Sigma \rightarrow X^2\Sigma$ de AlO al oscillationes anharmonic.

4) N. Sreedhara Murty e N. R. Tawde ha studiate alicun aspectos theoric del probabilitates de transition in le bandas $B^1\Sigma \rightarrow X^1\Sigma$ de BeO.

5) B. S. Patil e N. R. Tawde ha evalutate per le methodo graphic le distantias medie internucleari pro le transitiones $v' \rightarrow v''$ pro alicun bandas de AlO, CrO, e CH. Istos satisface le relation de Nicholl.

6) A. P. Walvekar e N. R. Tawde ha recalculate le probabilitate de transition in le systema β de BO. Un melior concordantia inter le resultatos theoric e experimental esseva obtenite.

7) J. D. Ranade, Indra Dev, e R. K. Srivastava ha notate bandas usque a (30,0) del progression (v'10) in un

o-o-o-o-o-o-o-o-o-o-o-o- GEMMA DE SAGESSA -o-o-o-o-o-o-o-o-o-o-o-o

N I M I S frequentemente il es credite que le observantia de jures human fundamental consiste simplemente in le adoption de resolutiones grandiose. Un maniera plus certe de facer progresso es le practica diurne del tolerantia inter individuos e inter nationes. Nam le mundo -- sin reguardo al racia, color, o credo -- es un vicinitate.

— LESTER B. PEARSON.

. . . DISCURSOS IN CALCUTTA . . . . .

spectro bandic de S_2.

8) M. L. Bhaumik e H. N. Bose ha studiate le transferentia de energia in le systema diphenylo-anthracena in su dependentia del temperatura.

9) H. N. Bose e A. L. Laskar ha determinate le probabilitate del escappata de electrones ex un trappa ab le curva de thermoluminescentia de LiF e p-xyleno.

10) H. N. Bose e S. C. Sen ha studiate le spectro de absorption del solution NaCl - TiCl.

11) I. Achyuta e V. Ramakrishna Rao ha observate 7 nove bandas in le spectro de absorption de formaldehydo.

12) D. D. Pant e D. P. Khandelwal ha studiate le spectro de absorption e fluoresentia de solutiones del acetato de uranylo, nitrato de uranylo, e sulfato de uranylo.

13) K. Venkateswarlu e P. T. Sambandam ha studiate le spectros Raman de norleucino, methionino, e del acido glutamic.

14) K. Venkateswarlu e S. Sundaram ha calculate le constantes de fortia del moleculas AsH_3, AsD_3, SbH_3, e SbD_3.

15) Nand Lal Singh ha studiate le effecto Zeeman in le bandas OD in le region ultraviolette.

16) Nand Lal Singh ha analysate le bandas ρ e γ del molecula PO. photographate con un grilliage de longitude focal de 10,7 m, e ha revidite le analyse reportate per previe laboratores.

—

In addition, 8 discursos esseva presentate al Convention de Spectroscopistas in Calcutta le 13 de januario. Breve summarios de istos es:

1) S. S. Dharmatti revideva le resultatos obtenite con un spectrometro de resonantia magnetic nucleari a alte resolution.

2) M. R. Padye discuteva le mechanismo del transitiones $n \rightarrow \pi$ in moleculas complexe.

3) Devendra Sharma discuteva le production e le interpretation del spectros de TeSe, SeS, e altere moleculas studiate recentemente.

4) G. Herzberg revideva brevemente su labor super le cambiamento Lamb in le stato de energia normal de D, e in le nivellos n = 2, 3, e 4 de He^+.

5) P. Venkateswarlu e R. D. Verma discuteva le spectros de emission de I_2, Br_2, e IBr, obtenite in le presentia de A, e photographate con un spectrographo equipate con un grilliage con un longitude focal de 6,4m.

6) R. S. Krishnan e P. S. Narayanan revideva lor spectros Raman del 2nde ordine del halidos de alcalis.

7) S. C. Sirkar e S. B. Roy discuteva le resultatos de lor investigationes del spectros de absorption ultraviolette de solutiones solidificate de ortho-, meta-, e para-dichlorobenzina in le alcohol isobutyl.

8) D. D. Pant revideva le characteristicas general del spectros del sales uranyl, e le processos basic que es involvite.

—

CONGRESSO DE INTERLINGUA

LE SECUNDE Congresso International pro Interlingua va esser tenite a Basel in Switza ab le 3 al 10 de augusto 1957. Vide calendario, p. 32.

DISCURSOS invitate pro le Symposio super le Spectroscopia e le Structura Molecular al Universitate Ohio State es le sequente.

• Lunedi, le 10 de junio 1957

INSTRUMENTATION INFRARUBIE E APPLICATIONES

1) Instrumentation infrarubie commercial, VAN ZANDT WILLIAMS.
2) Instrumentation pro alte resolution, E. K. PLYLER.
3) Instrumentation militar, LLOYD G. MUNDIE.

—

• Martedi, le 11 de junio

SPECTROS INFRARUBIE DE MOLECULAS

1) Spectroscopia infrarubie in le campo de bacteriologia, HARRISON M. RANDALL e DONALD W. SMITH.
2) Spectroscopia de moleculas in le infrarubio, K. NARAHARI RAO e EDWARD D. PALIK.
3) Titulo va esser annunciate, M. KENT WILSON.

—

• Mercuridi, le 12 de junio

LE DYNAMICA MOLECULAR

1) Le interaction del motiones rotational e vibrational in moleculas polyatomic, C. F. CURTIS.
2) Titulo va esser annunciate, D. G. BURKHARD.
3) Theoria del bandas harmonic e combinational del molecula CH_4, KARL T. HECHT.

—

• Jovedi, le 13 de junio

INTENSITATES

1) Titulo va esser annunciate, JOHN OVEREND.
2) Intensitates infrarubie: perturbationes e interactiones, DAVID F. EGGERS JR.

—

• Venerdi, le 14 de junio

SPECTROS ELECTRONIC

1) Titulo va esser annunciate, C. A. COULSON.
2) Studios de resonantia a spin electronic de radicales libere instabile, DAVID J. E. INGRAM.

N O V A S E M I S C E L L A N E A

WALLACE R. BRODE ha essite seligite como presidente Electe del Association American pro le Avantiamento de Scientia pro 1957, e como Presidente pro 1958. Dr. Brode es le Director Associate del statounitese Bureau National de Standards, e es le chef de un committee del statounitese Consilio National de Recerca super le presentation del datos spectral de absorption. Pro 7 annos passate, ille ha essite redactor del Journal of the Optical Society of America.

-o-

SALVADOR M. FERIGLE va esser ordinate prestre in le Ecclesia Catholic in julio. Su presente adresse es: Bruno Buozzi 73, Roma, Italia.

-o-

UN CURSO super le spectroscopia infrarubie va esser tenite al Instituto Polytechnic de Brooklyn (99 Livingston St., Brooklyn 1, N. Y.) ab le 3 al 7 de junio. Le costo del curso es $150, secundo Prof. Robert Bauman del departimento de chimia, telephono TRiangle 5-6412.

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(continuate al p. 31, col. 1)

SPECTROS MOLECULAR. III.
TRACTAMENTOS DEL COORDINATAS NORMAL DE MOLECULAS POLYATOMIC
B. APPLICATIONES SPECIFIC

Forrest F. Cleveland, Arnold G. Meister, e Fred L. Voelz
Instituto Technologic de Illinois, Chicago 16, Illinois
Statos Unite de America

Parcella 15. Continuate ab Spec. Mol. 6 (1957) 22

7B. Constantes de Interaction de Ligamine con Ligamine

IN ISTE section es date le constantes de interaction de un ligamine con un altere ligamine. Le constantes es del forma f_x^y, con x = h, f, c, b, i; e con y = h, f, c, b, i. Como in section 7A, h = C-H, f = C-F, c = C-Cl, b = C-Br, e i = C-I. Le valores numeric es date in Tabula 7B-1.

Tabula 7B-1. Constantes de interaction de ligamine con ligamine in mdyn/Å.

f_h^h

CH_3Br	-0,00781	CH_2F_2	-0,06805
CD_3Br	-0,00781	$CHDF_2$	-0,06805
CH_2DBr	-0,00781	CD_2F_2	-0,06805
CD_2HBr	-0,00781	CH_3F	0,0064
CD_2ClBr	-0,0106	CH_2DF	0,0064
$CHDClBr$	-0,0106	CD_2HF	0,0064
CH_2ClBr	-0,0106	CD_3F	0,0064
CD_3I	-0,0254	CH_2Br_2	0,06791
CH_3I	-0,0254	$CHDBr_2$	0,06791
CH_2I_2	-0,058345	CD_2Br_2	0,06791

f_f^h

CF_3H	0,25305	$CHDF_2$	0,25305
CF_3D	0,25305	CD_2F_2	0,25305
$CHFBr_2$	0,25305	CH_3F	0,25305
$CHBrF_2$	0,25305	CH_2DF	0,25305
$CDBrF_2$	0,25305	CD_2HF	0,25305
CH_2F_2	0,25305	CD_3F	0,25305

f_c^h

CCl_3H	0,08800	$CHDClBr$	0,08800
CCl_3D	0,08800	CD_2ClBr	0,08800
CBr_2ClD	0,08800	$CHBrCl_2$	0,09000
CBr_2ClH	0,08800	$CDBrCl_2$	0,09000
CH_2ClBr	0,08800	-	-

f_b^h

CBr_3D	0,05890	CH_3Br	0,05890
CBr_3H	0,05890	CH_2DBr	0,05890
CBr_2DCl	0,05890	CD_2HBr	0,05890
CBr_2HCl	0,05890	CD_3Br	0,05890
CH_2ClBr	0,05890	$CHFBr_2$	0,05890
$CHDClBr$	0,05890	$CDBrF_2$	0,05890
CD_2ClBr	0,05890	$CHBrF_2$	0,05890
CH_2Br_2	0,05890	$CHBrCl_2$	0,06000
$CHDBr_2$	0,05890	$CDBrCl_2$	0,06000
CD_2Br_2	0,05890	-	-

f_h^i

CD_3I	0,063509	CH_2I_2	0,063509
CH_3I	0,063509	-	-

f_f^f

CH_2F_2	0,75465	CF_3I	0,87900
$CHDF_2$	0,75465	CBr_2F_2	0,80996
CD_2F_2	0,75465	$CDBrF_2$	0,93260
CF_3D	0,87900	$CHBrF_2$	0,93260
CF_3H	0,87900	CF_4	0,96650
CF_3Cl	0,87900	CCl_2F_2	1,00475
CF_3Br	0,87900	-	-

f_c^f

CF_3Cl	0,70843	CCl_3F	0,90713
CF_2Cl_2	0,80800	-	-

		f_b^f	
CBr_3F	0,62654	$CDBrF_2$	0,66281
$CHFBr_2$	0,65000	$CHBrF_2$	0,66281
CF_2Br_2	0,66281	CF_3Br	0,71247
		f_f^i	
CF_3I	0,63250	-	-
		f_c^c	
CCl_3D	0,30760	CF_2Cl_2	0,31458
CCl_3H	0,30760	CBr_2Cl_2	0,35134
CCl_3Br	0,30760	$CHBrCl_2$	0,41040
CCl_3F	0,30760	$CDBrCl_2$	0,41040
CCl_4	0,31207	-	-
		f_b^c	
CBr_3Cl	0,31177	CD_2ClBr	0,32037
CBr_2ClD	0,32037	CBr_2Cl_2	0,32465
CBr_2ClH	0,32037	CCl_3Br	0,37782
CH_2ClBr	0,32037	$CHBrCl_2$	0,39000
$CHDClBr$	0,32037	$CDBrCl_2$	0,39000
		f_b^b	
CBr_2F_2	0,13918	CBr_3H	0,29910
CBr_3Cl	0,15400	CBr_3F	0,29910
$CBrI_4$	0,15437	CBr_2H_2	0,35568
CBr_2Cl_2	0,21296	CBr_2HD	0,35568
CBr_2ClD	0,27187	CBr_2D_2	0,35568
CBr_2ClH	0,27187	$CHFBr_2$	0,47827
CBr_3D	0,29910	-	-
		f_1^i	
CH_2I_2	0,16164	-	-

Nulle valores ha essite obtenite usque nunc pro le constantes f_c^i e f_b^i.

(Va continuar in un numero futur)

. . . NOVAS E MISCELLANEA . . . . .

(cont. ab p. 29, col. 2)

→ INSTRUMENT NEWS, publicate per le Corporation Perkin-Elmer a Norwalk in Connecticut, include in su Vol. 8,

(continuate al p. 32, col. 1)

SPECTROCHIMICA ACTA
INVITA
MANUSCRIPTOS

-

LE SEQUENTE littera ha essite recipite ab Dr. Foil A. Miller:

Le 28 de februario 1957

Car Collega:

Iste littera concerne le reorganisation de Spectrochimica Acta que ha essite publicamente annunciate in recente numeros de Nature, Science, e Spectroscopia Molecular. Un objectivo del reorganisation es assecurar que le jornal coperira plus adequatemente omne brancas del spectroscopia. In particular, le varie areas del spectroscopia molecular va reciper un plus grande emphase que in le passato.

Il ha nunc 4 redactores: V. A. Fassel e E. H. S. Van Someren, con interesses primarimente in le spectros atomic; e H. W. Thompson e io mesme representante le spectros molecular. In addition, un Consilio Redactorial de spectroscopistas prominente con un distribution mundial consiliara in re materias de interesse general.

Es le objectivo urgente del redactores e del publicator vider que Spectrochimica Acta es in le prime rango de jornales scientific. Pro assister in le attingimento de iste objectivo, io scribe iste littera pro invitar vos a publicar vostre melior labor de recerca in le jornal.

Publication in Spectrochimica Acta ha alicun avantages real: nulle costo de pagina, 50 reimpressiones sin costo, e un rata de publication que es rationabilemente rapide. Al presente, le interval inter le recepta de un manuscripto e su publication es circa 6 menses, si il ha nulle difficultates inusual con le recension.

Le reorganisation es effective immediatemente e le sequente numero va

. . . SPECTROCHIMICA ACTA . . . . .

apparer con un nove formato de copertura pro accentuar le cambiamento.

Vos trovara informationes in re le preparation de manuscriptos in cata numero del jornal. Io spera que io va haber le placer de reciper contributiones ab vos, e io facera mi melior de expedir lor publication.

Con le melior reguardos personal,

Foil A. Miller,
Redactor
Instituto Mellon de Recerca Industrial
Pittsburgh 13, Pennsylvania
Statos Unite de America

. . . NOVAS E MISCELLANEA . . . . .
(cont. ab p. 31, col. 1)

→ No. 2, un articulo per John P. Butler super le uso del spectroscopia infrarubie in le chimia de papiro.

Un altere articulo tracta de un studio infrarubie de gases expellite per automobiles. Iste articulo, scribite per Sumner B. Twiss, es le prime articulo de un serie super iste thema.

V. Z. Williams presenta al pagina redactorial un discussion del uso del spectrophotometro pro le chimista.

Finalmente, il ha un articulo in re le nove spectrophotometro infrarubie a duple fasces. Isto es appellate le "Infracord" e se vende pro $3850.

-o-

WORLD AROUND PRESS es un periodico de eventos currente publicate 26 vices per anno. Le contos es factual e es recipite ab correspondentes in omne partes del mundo. Precio: $4.00 per anno, $0.25 per exemplar. Redactor: Lisa Sergio, Woodstock, Vermont, S. U. A.

• S T A T I S T I C A V I T A L

COSTO per lector per anno.....$2.00

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C A L E N D A R I O
de eventos spectroscopic

• JUNIO 10-14. 11me symposio annue super le spectroscopia e le structura molecular. Columbus. (H. H. Nielsen, Universitate Ohio State, Columbus 10, Ohio, Statos Unite de America.)

• JUNIO 17-20. 3tie conferentia de carbon, includente un symposio "Ab Benzina a Graphite". Buffalo, (S. Mrozowski, Universitate Buffalo, Buffalo, New York, S. U. A.)

• JUNIO 17-28. Programma super le spectroscopia infrarubie: Technicas, junio 17-21; Applicationes, junio 24-28. (J. M. Austin, Summer Session Director, Room 7-103, Massachusetts Institute of Technology, Cambridge 39, Mass., S. U. A.)

• JULIO 8-10. 8ve symposio international de astrophysica. Thema: Lineas de Emission — Stellas. Liege. (P. Swings, Instituto de Astrophysica, Universitate Liege, Liege, Belgica.)

• JULIO 9-13. Symposio del gruppo europee de spectroscopistas molecular. Freiburg. (R. Mecke, Instituto de Chimia, Hebelstrasse 38, Freiburg im Breisgau, Germania.)

• JULIO 30-AUGUSTO 3. Symposio super le ligage hydrogenic. Ljubljana. (D. Hadži, Kemični Institut Borisa Kidriča, Slov. Akademije Znanosti in Umetnosti, Hajdrihova 19, Ljubljana, Yugoslavia.

• AUGUSTO 3-10. 2nde congresso international pro interlingua. Basel, Switza. (André Schild, Birmannsgasse 1, Basel, Switza.)

• AUGUSTO 26-30. 8ve instituto Fisk de spectroscopia infrarubie. Applicationes biologic. Nashville, Tenn. (N. Fuson, Departimento de Physica, Universitate Fisk, Nashville 8, Tenn.)

• 1958. Commission Juncte de Spectroscopia. Moscova, U.S.S.R.; o Ottawa, Canada. (P. F. A. Klinkenberg, Laboratorio Zeeman, Muidergracht 4, Amsterdam C, Hollanda.)

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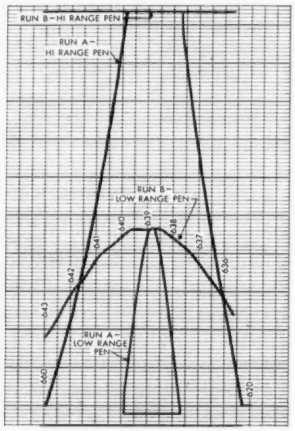

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All Cary instruments are truly direct reading. Freedom from stray light provides one of the most dramatic examples of what this can mean to a user, but there are others. Some of the unusual features of Cary Recording Spectrophotometers which contribute to accuracy by helping avoid corrections are listed at right.

COUNTER-DIAL WAVELENGTH SCALES—Easily read, no interpolation, corrections negligible for most work.

MULTIPOT-CORRECTED 100% LINES—All Cary Spectrophotometers have Multipots for compensating sample and reference cell differences, and for compensating mirror unbalances which inevitably occur in time.

SPECIAL RECORDER FUNCTIONS AVAILABLE—Log absorbance recording for qualitative—quantitative analyses. Kubelka—Munk function recording for paper and textile dye work. Expanded absorbance or transmission scales for weak absorbers or differential photometry.

ACCURATE PHOTOMETERS—Slide wires accurate to within limits of recorder readability. Photometer accuracy rigidly tested with standard filters. High power pen motor and low friction pen carriage. Constant controlled pen damping and fast response over entire absorbance range.

HIGH ACCURACY ELECTRICAL ZEROING—Spurious electrical pickup reduced by careful design and testing.

PHOTOMETRIC PRECISION TO STATISTICAL LIMITS—Statistically efficient photometer systems, reaching the theoretical limits achievable with the best modern multiplier phototubes and semiconductor photocells.

Complete specifications are available on all Cary Recording Spectrophotometers. Write to Applied Physics Corp., 362 West Colorado Street, Pasadena, California, for Bulletin CN-19.

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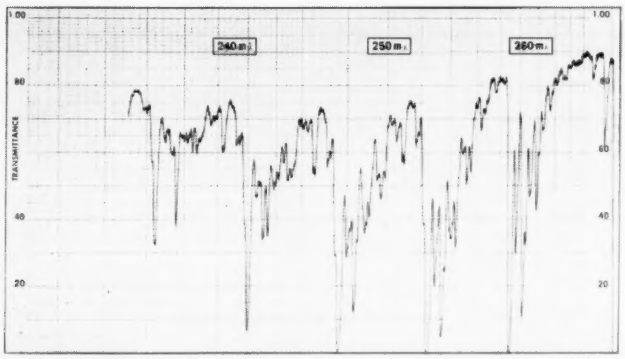
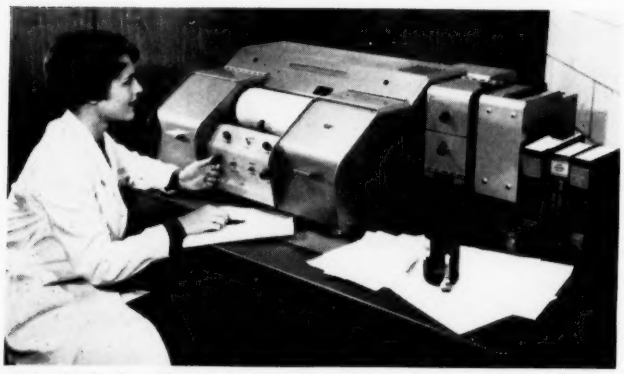
SPECTRACORD* 4000 Spectrophotometer

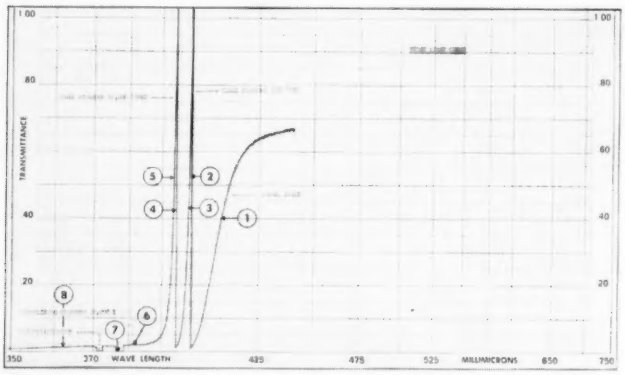
for the ultraviolet, visible and near infrared



High resolution is illustrated by the benzene vapor spectrum above. Instrument resolving power: **1** A at 2500 A; **2** A at 4000 A; **20** A in the near infrared.



Fast, Simple Operation:
Twice as fast as any other instrument at comparable resolutions.



Low scattered light of the instrument is illustrated by the above sodium nitrite run. **(1)** actual transmission of sodium nitrite at 0-100 T scale. **(2)** Scale expanded to read 1% T full scale. **(3)** Run continued with expanded scale. **(4)** Scale expanded to read 0.01% T full scale. **(5)** Same as **(3)**. **(6)** Transmission of sample 0.0002% T. Sample beam closed to show true zero. **(8)** Transmission stray light now 0.0001%.

The runs shown at left illustrate the unusual precision of the SPECTRACORD 4000 spectrophotometer. This laboratory instrument provides performance equivalent to considerably more expensive instruments, and at a price comparable to the least expensive spectrophotometers of limited operations. Design features of the SPECTRACORD 4000 instrument include:

- double monochromator for high resolution with virtually no scattered light. Superior to single monochromators for qualitative and quantitative analysis.
- drum-type recorder for greatest accuracy. Constant, even contact between pen and paper insures high reproducibility.
- linear absorbance and transmittance recording for increased analytical flexibility.
- plug-in electronic units for fast, easy servicing.
- time-drive and repetitive scanning accessories for your special analytical problems.
- a variety of recorder papers for the different wave-length ranges.
- speedy change-over from one recording range to another.
- single and double beam operation for spectral energy or transmittance recording.

The SPECTRACORD 4000 instrument, because of its versatility, simplicity and low cost has broad application in petroleum, food, drug, medical, agricultural, paint, plastics, glass, packaging, sewage, and paper industries.

Send for more complete information covering your particular application.

*Trade mark

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